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Private schooling and labour market outcomes

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Though a relative small part of the school sector, private schools have an important role in British society, and there are policy concerns about their negative effect on social mobility. Other studies show that individuals who have attended a private school go on to have higher levels of educational achievement, are more likely to secure a high-status occupation and also have higher wages. In this article we contribute new evidence on the magnitude of the wage premium, and address a puzzle found in previous studies: how to explain the direct pay premium whereby privately educated male workers have higher wages even than their similarly educated peers. It is commonly conjectured that the broader curriculum that private schools are able to deliver, coupled with the peer pressures of a partially segregated section of society, help to inculcate cultural capital, including some key 'non-cognitive' attributes. We focus here on leadership, organisational participation and an acceptance of hard work. We find that privately educated workers are in jobs that require significantly greater leadership skills, offer greater organisational participation and require greater work intensity. These associations are partially mediated by educational achievement. Collectively these factors contribute little, however, to explaining the direct pay premium. Rather, a more promising account arises from the finding that inclusion of a variable for industry reduces the private school premium to an insignificant amount, which is consistent with selective sorting of privately educated workers into high-paying industries.

Keywords: independent school; leadership; participation; pay; work intensity

Introduction

Research into the determinants of social mobility in Britain has often highlighted the role of private schooling in securing economic success for individuals in the labour market. Despite being a relatively small part of the school sector, private schools play an important role in British society. There is a perception, supported by a small body of research, that there is much social and economic advantage to be had from a private education. It is certainly the case that, on average, those individuals who attend a private school go on to have higher levels of educational achievement, are more likely to secure a high-status occupation and have higher wages (e.g., Dearden *et al.*, 2002; Sullivan *et al.*, 2014). This private school advantage—equivalently, the state school disadvantage—also appears to have increased over the latter part of the twentieth century (Green *et al.*, 2012). The educational and economic gains from private schooling have in turn led to concerns about a potential negative impact on inequalities in the

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education system and on social mobility, and led to consideration of the scope for public policy intervention on this issue (Sullivan & Heath, 2003; Evans & Tilley, 2012; Kynaston & Kynaston, 2014; McKnight, 2015).

The desirable form of any policy intervention should depend, however, on an understanding of the sources of private schools' greater outcomes. Explanations typically revolve around issues of differential resources, school autonomy, family support and on what it is that private schooling develops in their pupils that leads to their educational and economic successes. This article concerns the last of these issues. It is commonly conjectured that the broader curriculum that private schools are able to deliver, coupled with the peer pressures of a partially segregated section of society based on ability to pay, help to inculcate cultural capital, including some key 'non-cognitive' attributes that are of considerable value later in working life. We contribute to an understanding of private schools' effects on such attributes, focusing in particular on the roles of leadership, participation and an acceptance of hard work. Thus, whereas most previous studies have focused on relationships with educational outcomes and pay, we examine a broader set of job facets. We examine whether private schooling is associated with having jobs that involve these attributes, and whether these in turn can help to account for the private school pay premium.

There are of course a number of methodological challenges in addressing these questions, largely around the quality and type of data that we are able to use and the difficulties of establishing causal relationships between private schooling and the labour market outcomes of interest. These issues will be discussed in detail later but first we justify why a focus on the British private school sector is of interest.

The role of the private school sector in the United Kingdom

For the international reader it is important to explain the major sociocultural significance of the British private school sector. Even though it only educates around 7% of children at any one time, somewhat more—estimates from the British Social Attitudes Surveys suggest at least 12% of adults—have been at private school at some time during their childhood. Moreover, historically private fee-paying schools (sometimes termed 'prep schools' at primary level and, confusingly, 'public schools' at secondary level) have played a hugely important role in British society and politics, going back hundreds of years (Gathorne-Hardy, 1977). A high proportion of those taking the very highest status jobs in society are privately educated (Sutton Trust 2005, 2010). The so-called 'establishment'—judges, politicians, top lawyers, broadcasters and top business leaders—are disproportionally likely to have attended a select number of private schools and this has sustained fears of the sector's dominance in the upper echelons of power. Indeed, many have argued that the private sector is responsible for a kind of social apartheid in the British education system, whereby the rich educate their children in these elite private schools that the rest of the population cannot access. There are relatively low levels of intergenerational income mobility and high levels of income inequality in Britain (Crawford *et al.*, 2011; Blanden *et al.*, 2013; Corak, 2013), and hence there has been growing policy interest in understanding the drivers of social mobility (Ermisch *et al.*, 2012).

This notion of a segregated system was reinforced in the past by the nature of private sector schooling. For most of its history, private schooling in Britain was dominated by the single sex boarding school model whereby students resided at the school during term time. Not only did this model make the price of private schooling even higher, and hence the schools even more socially selective, it also suggested a particular all-encompassing socialising model of schooling (Walford, 1986). The sector is evolving: by 2015, the proportion of pupils boarding had fallen to just 14%[1] and the number of single sex schools had declined sharply. Key features of the traditional segregated school system persist, however. Evans and Tilley (2012) studied the social attitudes of those who did and did not attend a private school in England and found stark contrasts. Those who attended private school were five times more likely to send their own children to a private school than a parent who attended a state school, further supporting this notion of the very rich being quite separate from the rest in terms of the schooling of their children. Moreover, those who had been educated privately had quite distinct political and social attitudes as compared to their peers who had not been privately educated.

There are also some other specific features of the British private school system that make it of interest to an international readership. Unlike in some education systems, the British private school sector has minimal state involvement and no state funding, beyond eligibility for some tax reliefs on account of their status as charities. While these features no doubt help the sector to remain highly socially and economically selective, they also furnish, for research purposes, an interesting example of what schooling looks like if it is both funded extremely well and freed from state control. The answer is that the private school system is highly hierarchical. In the majority of cases academic selection determines which child attends which school. Bursaries for poorer children to attend these schools are also modest in number and often linked to having high academic achievement. It should also be noted that while the percentage of children who are educated in private schools has been quite stable over time, there is substantial regional variation. The private sector is especially important in some areas, notably London. This, too, will influence the kinds of students who are able to access private schooling. A further significant development in recent years is the increasing overlap of British private schooling with the growing system of elite international schools worldwide. While several British schools have set up campuses abroad, the proportion of private school students in the UK who are non-British had reached 5% by 2014, the largest national group coming from China. Increasingly the British private school sector is servicing a mobile international customer base, in addition to its traditional markets. At some schools, British children must compete with foreign children for places. Thus the role of the British private school sector is both contentious and significant beyond the relatively small number of British students it educates.

Private schooling, educational achievements, leadership and job quality outcomes

So, from an economic perspective, why do we think private schooling might influence both education achievement and beyond that the return to education? A standard

education production function approach would suggest that since private schools have greater resource inputs (expenditure per pupil for example) and are generally more selective in their pupil intake, they are likely to deliver students with higher levels of academic achievement. In addition, it has been advanced that private schools, freed from state control, might be more efficient (OECD, 2010). However, in Britain there is little evidence that private schools use their resources more optimally than state schools (Davies & Davies, 2014).

Sociological models that stress the value of social and cultural capital would also predict that children from higher socioeconomic backgrounds, with families with greater economic, social and cultural resources to invest in education, will do better academically irrespective of whether private schools are more efficient. Again this is what is observed empirically (Crawford *et al.*, 2010; Gregg & Macmillan, 2010; Bukodi & Goldthorpe, 2011a, 2011b; Goodman *et al.*, 2011; Chowdry *et al.*, 2012; Green *et al.*, 2012; Devine & Li, 2013; Jerrim, 2015). Further, the influence of family background is particularly strong in early childhood (Feinstein, 2003a, 2003b). This literature also stresses the potential value of networks as mechanisms by which individuals reproduce their sociocultural advantage to secure their place in the labour market (Holzer, 1988; Corak & Piraino, 2010; Bingley *et al.*, 2011).

Beyond the educational system, the UK labour market is partially meritocratic in the sense that labour-market outcomes are linked to educational achievement. The economic return to education remains high and despite the expansion of post-compulsory schooling, the demand for more educated and skilled workers has remained strong. Hence the rate of return to a degree, for example, has not fallen (Walker & Zhu, 2011) despite the increase in the number of graduates, though it should be noted that we are seeing greater variation in earnings within the graduate group (Green & Zhu, 2010). This literature would of course imply that privately educated students will have better labour-market outcomes and higher wages simply because of their higher levels of educational attainment. Indeed, several studies confirm the existence of a private school pay premium, whether just among graduates or among the wider population, and even after controlling to varying extents for social background factors (Dolton & Vignoles, 2000; Naylor *et al.*, 2002; Dearden *et al.*, 2002; Macmillan *et al.*, 2013; Crawford & Vignoles, 2014; Crawford & van der Erve, 2015; Green *et al.*, 2015). Green *et al.* (2012) also found that the private school advantage had increased over time (comparing individuals educated in the 1970s and 1980s): they concluded that the major factor explaining this increase in the private school wage premium was the improved academic attainment of those enrolled in private schools (brought about, at least in part, by the large increase in funds going into private education over this period).

These studies leave unexplained, however, a finding common to several of them, namely that private schooling appears to evince a pay premium over and above its impact on educational achievement. We term this the direct pay premium. This direct effect is reported to be substantial for men, but much lower and in some cases insignificant for women (Dolton & Vignoles, 2000; Dearden *et al.*, 2002; Green *et al.*, 2015). Comparing these studies' findings, it may be that the unexplained pay premium emerges, not so much immediately after graduation, but at somewhat later career stages. What lies behind this direct pay premium? Drawing on the classical

theories of wage differentials, in this article we consider the possibility that private schooling has a direct pay premium because it aids development of non-cognitive attributes that are reflected later in rewarded job characteristics.

Thus, it can be hypothesised that private schools develop self-valuations and aspirations—characteristics included under the banner of 'non-cognitive skills'—better than state schools, and that these non-cognitive skills have a value beyond education. Green *et al.* (2015) find that private education has a positive effect on children's locus of control, and on their aspirations for good jobs, while also initially selecting children with relatively high self-esteem. These particular non-cognitive factors were found to have relatively small direct effects on pay in mid-career (age 42), and together accounted for only a minor fraction of the pay premium that men received. Other non-cognitive skills, however, could play an important role. In this article we focus attention first on 'leadership', which has received some notable attention from labour economists in recent years. Several studies have found that pay is positively related to self-reported leadership skills or to evidence of having been in leadership positions while at school (Kuhn & Weinberger, 2005; Deutscher, 2009; Rouse, 2012). Leadership is an explicit component in the proclaimed visions of many private schools. It is integral to the extended curriculum activities on which private schools place great emphasis, including for example team sports and combined cadet force (CCF) training (Walford, 1986). It is therefore of interest to consider this as an explanation for the direct pay premium from private schooling that we observe.

Related to leadership are the propensity and facility to participate in organisation-level decisions. Such participation is associated with job-related well-being and is viewed by labour studies analysts as a positive aspect of job quality (Gallie, 2013). In itself, this positive aspect would imply that there would develop a negative compensating pay differential, if the labour market were competitive. Yet, the fact that the facility to participate entails judgement, confidence and other potentially rewardable non-cognitive or cognitive skills, implies a positive association with pay. Overall, therefore, the predicted association with pay is ambivalent.

However, neither leadership nor participation have hitherto been investigated in relation to the pay-premiums associated with school type. If leadership and a propensity to participate in organisation-level decision-making are differentially cultivated in private schools, and these skills have a substantive impact on pay, there may be a direct pay premium from a private education. Moreover, if opportunities for acquiring and exercising leadership or participation skills are gendered (for example where 'glass ceilings' limit promotion or expectations of promotion, or where part-time workers are excluded from leadership roles), or if the development of leadership is thought to be stronger in boys' than in girls' schools, the direct premium could be larger for males. In what follows we do not have direct measures of workers' leadership skills. However, we are able to examine whether private schooling selects workers into jobs that are intensive in the use of key leadership tasks or in the opportunity to participate in organisational decisions that affect their jobs, and whether these factors lie behind the pay premium.

It may also be hypothesised that privately educated workers have greater aspirations for success and accordingly an enhanced propensity to accept higher levels of required work effort. If so, the pay premium might reflect a market-driven

compensating differential for high work intensity (Green, 2006, pp. 63–64). However, while there is evidence that high skilled jobs that need more educated workers also entail greater work intensity (Green, 2006, pp. 92–93), there are hitherto no studies that examine links between school-type and subsequent job quality outcomes beyond pay. Gender differences in the direct pay premium associated with private school might also be expected, both because of the historical differences between the visions of girls' and boys' private schools whereby the latter may have emphasised work aspirations to a greater extent than the former, and because of traditional gender differences in labour-market experiences. With respect to work intensity, Gorman and Kmec (2007) provide evidence of women working harder than men in both the US and Britain, while Lindley (2015) notes this conclusion holds only for some indicators of work intensity. In this article we examine, separately by gender, whether private schooling is associated with high work intensity, both before and after controlling for social background and educational achievements, and whether this can account for the private-school direct pay premium.

We thus consider the following questions. First, what is the private-school pay premium, and can it be confirmed that this includes a direct private-school pay premium over and above the effect of a private education on educational attainment? Second, do privately educated individuals work in jobs that have greater leadership skill requirements and that offer greater opportunities to participate in organisational decision-making? Third, do privately educated individuals have jobs that require them to work hard? Finally, if so do these factors account for the direct pay premium, and if not what else might do so?

Data and methodology

To examine these questions, we are mindful of the fact that we are dealing with factors that are not easily measured, and with relationships that could vary over time as both education and labour markets evolve. We use two complementary data sets: the British Cohort Study (BCS), comprised of all those born in a single week in 1970, and the Skills and Employment Survey (SES), a repeated cross section survey of working age people in Britain (Felstead *et al.*, 2013). The BCS revisited participants three times through their childhood, and as adults at the ages of 26, 30, 34, 38 and 42. While both surveys contain the required information, BCS contains especially rich social background data, and SES has especially detailed job characteristics data (including both job quality and task data).[2] The SES sample we use pools data from 2006 and 2012. To focus on a population almost all of whom have completed education but have not moved beyond normal retirement ages, we limit our SES sample to those aged 25 to 60. So while SES covers the employed labour force across a broad age range, BCS focuses on the circumstances at age 42 because it was only in that data sweep that participants were asked questions about the quality of the jobs they were doing. Consequently, estimates could vary between data sets because potential effects from private-school attendance might change with the stages of the life-course, or because variable definitions are, though similar, not identical. Nevertheless, use of

two data sets can help to raise confidence in the findings where the patterns and significance of estimates are aligned.

The key explanatory variable of interest is whether the individual attended a private school. For BCS70 we use a combination of contemporaneous and retrospective data on school name and type, capturing schooling attended at the time of the age 16 survey, just prior to GCSE. For SES, respondents were asked: 'what type of school did you last attend?' (comprehensive, state grammar, secondary modern, private, technology college, other). There are limitations to this way of measuring private school attendance. In particular, we do not observe how many years the individual spent in private schooling.

Our outcome variables are leadership tasks intensity, organisation-level participation, work intensity and real gross hourly pay. The SES data is particularly rich with regard to measures of job characteristics. Included are a set of self-reported key leadership tasks, whose importance in the job is assessed against a 5-point scale, and general assessments of task variety and the leadership responsibilities in the current job. The leadership scale comprises information on the importance of making speeches/ presentations, influencing/ persuading, strategic decision-making, resource control, as well as an assessment of general job task variety and a variable to distinguish between those with managerial duties, those who supervise co-workers and those that do neither. We take the first principal component of these, average the score for each 4-digit occupation (unit group) and thus generate a standardised 'leadership task intensity' for each person's occupation. This measure is then also applied in the BCS where we know individuals' occupations but the equivalent job-level task data is unavailable.

Participation occurs at different levels (job or organisation). The BCS indicator combines these levels, focusing on participation in decisions that are perceived as affecting employees' own work. Respondents are asked for their extent of agreement (5-point scale) with 'My job allows me to take part in making decisions that affect my work'. We define a dummy variable according to whether people strongly agree with the statement. In the SES data, the variable focuses on participation with respect to workplace change. We define a dummy variable according to whether respondents report that they would have a great deal or quite a lot of say in workplace changes that affected their job.

Work intensity is best measured with multiple items, since the way it is perceived and manifested is likely to vary among individuals doing different types of work (Green, 2006). BCS and SES contain almost identical items (though with differing scales) on the need to work very hard, working under a great deal of tension and working to tight deadlines that capture different aspects of work intensity and which we combine into a single index by taking the average. For more details of these and all our explanatory variables see the Appendix.

In addressing our questions, we are unable to use an experimental methodology or even a quasi-experimental methodology (there being no suitable valid instrumental variables or policy discontinuities) to determine the causal impact of private schooling on any particular labour market outcome. Instead, we provide correlational evidence which relies on rich and comprehensive controls for individual characteristics. We argue that, with the range of variables that we have at our disposal, we are able to take

account of many sources of selectivity into private schooling, such as family socioeconomic status. This enables us to be more confident that the associations we present are likely to be attributable to the school attended, rather than other characteristics of the individual or their family. However, we are mindful that we are unable to control for unobserved characteristics of individuals or their families that may influence both their likelihood of attending a private school and subsequently their labour-market outcomes.

In the case of work intensity, leadership task intensity and pay we model the determinants using linear regression:

$$y_i = \alpha + \beta P_i + \chi X_i + u_i$$

where y_i stands for each outcome for individual i, P_i is a 0/1 dummy variable for private or state education, X_i stands for a set of control variables and u_i stands for other unobserved factors. In the case of participation y_i is a dichotomous outcome, which can be taken as the realisation of a random latent variable y_i * whose determinants are estimated using the logit model (Wooldridge, 2002, ch. 15).

We show the results in the following manner. Our interest is primarily in the estimates of β, the effect of private school status on the outcome variable. We start by describing the raw differences in outcomes for those who attended a private school compared to those who did not. Clearly in this model with no controls the described differences may be attributable to a range of other characteristics that are correlated with private schooling, such as family background. We therefore add sequentially sets of variables that control for an increasing number of sources of selectivity and influence. Specifically, we present the following sets of estimations:

- Model 1: Unconditional differences in the outcome between private and state schooled individuals.
- Model 2: As above but including demographic controls for family background (and, in the case of BCS, prior levels of cognitive skill).
- Model 3: As above but including the individual controls for family background. Note that model 3 is a stringent specification asking whether there is an additional direct association between private schooling and the labour-market outcome of interest, over and above any impact from private schooling on a person's highest level of educational achievement. The coefficient on the private school dummy in this model is our estimate of the 'direct' pay premium referred to earlier.
- Finally, in the case of pay, we also add Models 4 and 5, investigating whether additional factors, including the other job-quality variables, are related to pay, thereby also influencing the private school effect on pay.

Our modelling strategy relies on having rich data and a comprehensive set of controls to be included in Model 2 and subsequent models. The SES is indeed relatively rich and enables us to include a range of covariates. As is standard, we control for the person's human capital, as measured by their education level, their degree subject, type of higher education institution (distinguishing between Oxbridge and the 'old universities' compared to the rest), degree classification and highest level of formal qualification in mathematics. Additionally, we have controls for demographic factors

and some indicators of family background, namely ethnicity (white/non-white), marital status, the number of dependent children, age (and age squared), financial situation at home during childhood and parental interest in their schooling. Broadly, therefore, the SES data enable us to control for an individual's socioeconomic background, potential parental investments in their schooling, and the individual's own level of human capital.

The BCS data is yet richer than the SES data in terms of background demographics, including cognitive skills measured in the early years of the child's life, personality data and many details about respondents' birth, infancy, homes and parents. For this article we include the following, each of which have been found to be of some relevance in various previous studies: cognitive skills measured at ages 5 and 10; age 10 introversion score; social background [parents' highest education level; parents' social class; overcrowded house at age 5; mother's age when respondent born; duration of breastfeeding; birth weight; ethnicity (7 categories); whether family owned house when aged 5; region of birth (13 categories); birth order; household income at age 10; mother's and father's interest in child's education; whether in receipt of free school meals (age 10); broadsheet newspaper in household (age 10)]. While further background controls could be added, these make little or no difference to the estimates of concern in this article. We also include detailed indicators of educational attainment at 16 or later. These are the standardised age 16 GCSE exam score; number of A–C grade A levels; highest level of 'facilitating' A levels (a classification which ranks A level subjects on their suitability for university access); highest educational qualification level; if degree: subject (3-categories), whether at an elite university, and degree grade (whether upper second or first)—all interacted. Because we exploit information from all of the childhood waves of the study, including the age 16 wave, the problem of missing data needs to be addressed. We do this using multiple imputation methods (Mostafa & Wiggins, 2015). In each model the dependent variable is entered with only non-imputed data, as is the key explanatory variable of interest, school type. Otherwise, covariates are imputed where missing. Our multiple imputation procedure utilises 20 alternative imputations which are taken into account when constructing the standard errors of the estimates.

Results

a) Descriptive analysis

Table 1 presents the average values of our key outcome variables, and demonstrates the raw differences in labour market outcomes between state and privately educated employees. It can be seen that not only pay, but also leadership intensity, participation and work intensity are all substantially greater for those who were privately educated.

In the BCS the differences between privately educated people and those who experienced state education exceed the differences by gender in some instances, for example on the measure of leadership. In terms of pay, the raw difference between private and state educated workers in the BCS data is substantial. At 42 the former earn around double that of state-educated employees and again this far outstrips the

Table 1. Pay, participation, work intensity and leadership task intensity, averages by school type, gender, social class and education

	Leadership tasks		Participation		Work intensity		Hourly pay	
	SES	*BCS*	*SES*	*BCS*	*SES*	*BCS*	*SES*	*BCS*
Total								
Average	0.133	0.305	0.302	0.270	0.069	3.73	11.42	16.11
Std. Dev.	1.231	1.254	0.459	0.444	0.720	0.78	12.33	15.17
School type								
Private	0.771	0.968	0.408	0.366	0.210	3.86	15.73	29.95
State	0.061	0.263	0.293	0.263	0.059	3.72	11.17	15.25
Sex								
Male	0.181	0.430	0.317	0.312	0.073	3.80	12.70	18.74
Female	0.020	0.179	0.281	0.226	0.061	3.65	10.14	13.42
Socioeconomic background								
High	0.230	0.663	0.326	0.297	0.070	3.74	12.21	20.16
Low	0.061	0.191	0.291	0.261	0.066	3.73	11.19	14.81
Educational achievement								
Tertiary	0.719	0.776	0.328	0.308	0.205	3.84	14.82	20.65
Upper secondary	−0.013	0.138	0.296	0.278	0.004	3.71	10.14	13.40
Lower secondary or less	−0.540	−0.180	0.267	0.220	−0.055	3.60	8.31	11.86

SES: employed workforce between ages 25 to 60 years. BCS: employed workforce at age 42. Additionally, indicators from SES and BCS are not comparable because they are differently derived—see text. Socioeconomic background in SES derived from retrospective information on the financial situation during childhood, where 'quite easy' or 'very easy' indicate a well-off family background. In BCS, parental social classes I and II at birth are defined to measure high levels of socioeconomic background. Educational levels are grouped into lower secondary level or below (levels 0, 1 and 2), upper secondary education (level 3) and tertiary education (level 4 or above).

differences across gender and socioeconomic background, and is more similar in magnitude to the difference between graduates and those with lower-secondary education.

Moving to the SES data, the differences across those educated in the private and state sectors is more muted in terms of pay but substantial in terms of the gap in leadership intensity, participation and work intensity. In every case the privately educated worker has the advantage.

b) Private school effects on non-monetary job facets

To compare like with like, and thereby to address the specific questions posed above, we now present our multivariate estimates. We estimate both the total and the direct private-school effects on a range of job-related outcomes. First we examine to what extent private-school attendance determines job facets beyond pay. Second (next sub-section) we study the private-school pay premium and explore how well the non-monetary job facets account for the pay effects. The use of both BCS and SES provides the opportunity to explore these issues and seek confirmation from slightly different angles. The models for leadership, work intensity and pay are estimated using Ordinary Least Squares regression, while the

models for participation, which is a binary outcome, are estimated using a logit estimator. All estimations use the appropriate cross-sectional survey weights and robust standard errors.

Because we expect different labour market mechanisms and incentives by gender, findings are reported for men and women separately. Table 2 presents the main results from our analysis of private school effects on non-monetary job facets, the columns showing Models 1 to 3 as described above. Thus column (1) reports the unconditional differences between private and state school alumni, the second column adds background characteristics that determine the selection into private schools such as socioeconomic status during childhood, demographic information and, in the case of BCS, cognitive skills at age 10. The second column provides our estimate of the total effect of private school attendance on the job facets later in life conditional on these other characteristics. In the last column, we estimate a third regression with additional controls for post-secondary educational achievements to estimate the direct private-school effect, over and above any impact from private schooling on the highest level of education achieved.

Earlier we noted that private schools may place greater emphasis on different elements of the curriculum, and particularly on leadership skills. According to our hypothesis, if private schools successfully teach leadership skills we might expect alumni to sort into, or get assigned to, more leadership-intensive jobs on average. In the first and second panels of Table 2 we show the relationship between attending a private school and leadership intensity measured either in terms of the leadership intensity of the person's job or the leadership intensity of the person's occupation. To give an idea of the magnitude of the effects, we use the standard deviation which is shown in the descriptives of Table 1. As Table 2 column 1 indicates, males who attended private schools are in occupations with greater leadership intensity (0.76/1.23 = 0.63 of a standard deviation more). The private school differential is also observed for women though it is somewhat smaller (0.55 of a standard deviation gap). These effects are large, mirroring the gaps reported in the descriptive findings of Table 1.

From Model 2 it is seen that the estimated effect of private schooling on a job's leadership skills is reduced to 0.46 on the leadership scale for men and 0.35 for women; the comparison with Model 1 shows the considerable extent to which the differential is explained by background characteristics in the SES data. The more comprehensive controls in BCS reduce the estimated effects on occupational task intensity more substantially. Among men private school attendance remains significantly associated with leadership, but among women the effect, though positive, is insignificant.

Including controls for post-secondary educational achievements (Model 3) reduces the coefficients further and, for both men and women, leaves them statistically insignificant in most specifications. Hence it appears that private school males' leadership advantage is largely mediated by education attainment. Privately educated men do select into occupations with greater leadership intensity than state-educated men from similar backgrounds. However, this association arises because of the positive impact of private schooling on educational attainment and the link between higher levels of education and leadership roles.

Table 2. Private school education and job facets in later life

		(Model 1) Raw		(Model 2) + Socio-demographics		(Model 3) + Education	
		SES	*BCS*	*SES*	*BCS*	*SES*	*BCS*
Leadership tasks	M	0.765***	0.718***	0.561***	0.237**	0.236**	0.125
		(0.103)	(0.091)	(0.102)	(0.096)	(0.103)	(0.095)
	W	0.677***	0.598***	0.429***	0.115	0.126	−0.0361
		(0.137)	(0.093)	(0.120)	(0.095)	(0.0997)	(0.093)
Participation	M	1.678***	1.83***	1.429*	1.65***	1.296	1.55***
		(0.319)	(0.269)	(0.279)	(0.270)	(0.266)	(0.263)
	W	1.653**	1.29	1.484**	1.17	1.509**	0.963
		(0.331)	(0.232)	(0.293)	(0.228)	(0.300)	(0.198)
Work intensity	M	0.136**	0.199***	0.0916	0.183***	0.0649	0.142**
		(0.0664)	(0.053)	(0.0693)	(0.058)	(0.0690)	(0.059)
	W	0.107	0.0535	0.0898	0.0371	0.0370	−0.012
		(0.0678)	(0.065)	(0.0689)	(0.070)	(0.0666)	(0.070)

Effects from logit estimations (Participation) or OLS regressions (work intensity, leadership tasks). Logit coefficients are reported as odds ratios. Numbers of observations: Leadership Tasks (SES = 7536, BCS = 6208), Participation (SES = 7506, BCS = 6212), Work intensity (SES = 7538, BCS = 6200). Standard errors in parentheses. *$p < .1$, **$p < .05$, ***$p < .01$

There is also evidence, as shown in the third panel, from both data sets that private education increases the likelihood of an individual later working in a job with a higher level of employee participation. For males in the SES data, private school alumni had 68% higher odds than state school participants of working in jobs with high levels of employee participation. Controlling for background and demographic characteristics reduces the private school advantage to 43% but it remains significant at the 10% level. Adding controls for post-secondary education reduces the estimated odds ratio to 1.30 (statistically insignificant). The BCS data also suggest much higher odds of working in a job with high levels of employee participation if you have attended a private school (83% higher). Inclusion of BCS' richer set of covariates including post-secondary educational achievements does not eliminate the private school advantage (55% higher odds) and it remains statistically significant. This suggests a sizeable direct private school effect on the odds ratio of working in a job with high employee participation. For women, again those who attended private schools have a higher chance of doing a job with high levels of employee participation and this effect remains large (65% higher odds) and statistically significant in the SES data, even after controlling for other demographic factors and highest level of education achieved. In the BCS data however, the private school advantage for women is smaller even in the unconditional regression and is statistically insignificant in all the models. Overall, private schooling appears to increase the chances for males of working in a job with high levels of employee participation, but for women the evidence is mixed and not robustly confirmed by both data sets. Potential private school effects on participation may vary more over the life course for women.

The 'price' of doing a job with higher levels of employee participation is often higher demands on workers through more intensive work requirements. The fourth panel of Table 2 indicates that male private school alumni report on average higher

levels of work intensity than people who attended state schools. In the SES all age sample these apparent differences are, however, mostly explained by background characteristics and further mediated through post-secondary education. The inclusion of covariates reduces the private-school effect and renders the private-school effect statistically insignificant in the male subsample of SES. For private-school educated men in the BCS data who are mid-career when we observe them, there is clear evidence of a persistent direct private-school effect on work intensity. So, there is some evidence that at certain stages of a career, male private-school alumni are more likely to be in jobs that require them to work harder than otherwise similar state-school alumni. This direct private-school effect on work intensity might suggest that the private-school pay premium found in other studies could be a compensating wage differential to remunerate greater job demands. In contrast, for women there is no evidence that there is a difference in work intensity by school type.

Overall, the estimates suggest that private schooling is associated with key non-monetary aspects of jobs. For men, the effects on leadership and participation are robust in so far as they show up in the two separate data sets; the relationship with work intensity is also nevertheless strong in the BCS data. For women, the links with participation and leadership tasks appear more muted, and there is no evidence for raised level of work intensity. In some cases, we also find a direct effect over and above what can be accounted for by the relationship between private schooling and educational achievements. Most notably, we find some evidence for direct private-school effects on the likelihood of having a job with high levels of employee participation and greater work intensity. The relationships we observe are stronger for males. In the case of leadership, the private-school advantage for males appears to be largely mediated by post-secondary educational achievement. We now consider whether these patterns can account for the pay advantage associated with having attended a private school.

c) Pay effects of private school attendance

Table 3 summarises the main results from a series of wage regressions of log gross hourly pay on private-school attendance. As before, we compare the raw differences in pay by school type with the effects after the addition of further controls separately for men and women in both SES and BCS.

Shown in model (1) is the strikingly large and statistically significant raw difference in wages between private- and state-educated individuals. In model (2), after accounting for differences in socio-demographic characteristics using the rich controls of the BCS, the private school pay premium is 35% for males, and 21% for females.[3] These are the best estimates we have of the large mid-career benefits from earlier private secondary education, viewed from the perspective of the parents and students making the investment.

How much of this benefit is mediated through subsequent educational achievements? Adding education controls [model (3)] reduces the private/state differences substantially considerably for both sexes, reflecting the fact that much of the private-school advantage in wages comes from the strong relationship between private schooling and the highest education level achieved. For women, there now remains

Table 3. Pay Premium of private schooling and non-monetary job characteristics

	(1) Raw		(2) + Socio-demographics		(3) + Education		(4) + Non-monetary job facets		(5) + Industry
	SES	*BCS*	*SES*	*BCS*	*SES*	*BCS*	*SES*	*BCS*	*SES*
Males									
Private school	0.399***	0.584***	0.292***	0.297***	0.106**	0.173***	0.081*	0.146***	0.045
	(0.0574)	(0.0460)	(0.0539)	(0.0473)	(0.0524)	(0.0458)	(0.0467)	(0.0436)	(0.0464)
Leadership tasks							0.130***	0.121***	0.126***
							(0.0085)	(0.0085)	(0.0083)
Participation							0.0148	−0.003	0.0315
							(0.0204)	(0.0217)	(0.0194)
Work intensity							0.0217*	0.096***	0.0239**
							(0.0125)	(0.0139)	(0.0118)
Females									
Private school	0.287***	0.477***	0.173***	0.192***	0.0254	0.058	−0.007	0.064	−0.027
	(0.0466)	(0.0471)	(0.0448)	(0.0474)	(0.0435)	(0.0455)	(0.0427)	(0.0417)	(0.0411)
Leadership tasks							0.158***	0.163***	0.154***
							(0.0098)	(0.0084)	(0.0091)
Participation							0.00915	−0.084***	0.0122
							(0.0184)	(0.0215)	(0.0175)
Work intensity							0.048***	0.109***	0.0436***
							(0.0107)	(0.0111)	(0.0100)
Observations	6547	6136	6547	6136	6547	6136	6547	6136	6547

Results from a pooled OLS wage regression of log gross hourly pay on private schooling and covariates with gender-specific coefficients. Standard errors in parentheses. *$p < .1$, **$p < .05$, ***$p < .01$

no significant direct pay premium using either data set. But for men there is evidence for a direct private-school pay premium for males of 11% in the SES data and of 19% in the BCS data.

Can non-monetary job facets together explain the male direct pay premium from private schooling? Model (4) adds these to the estimation. As can be seen, leadership task intensity emerges as a strong predictor of wages in both data sets, with almost identical effects in the male and female subsamples. With the SES data, a standard deviation increase in an occupation's required leadership skills is associated with around 16% higher hourly wages for otherwise similar individuals, conditional on the other covariates. There is also some modest evidence for compensating wage differentials. Higher work intensity is also significantly associated with higher pay. Similarly, doing a job with higher levels of employee participation is, for women, significantly associated with lower pay, though only with the BCS data.

Yet, adding the non-wage facets to the model in column four changes the estimated direct pay premium of private schooling rather little. Thus it appears that the direct pay premium of private school alumni is not due to them choosing or being selected for jobs where they must exert higher work effort, nor is it down to their greater use of leadership skills, despite the strong effect pay effects of leadership.

We are left, then, to consider other alternative sources of the direct private-school pay premium. One possible explanation is social networks: certainly the use of networks has been found to be associated with social class and private school attendance in Britain (Naylor *et al.*, 2002; Marcenaro-Guierrez *et al.*, 2014; Green *et al.*, 2015; Macmillan *et al.*, 2015). We cannot measure networks directly in these data but we might anticipate that a network effect would operate differentially across industries. The connections made through school or university might give exclusive information on job openings, provide contacts, or help in the recruitment process, where private school alumni are already prevalent in relatively high numbers. Moreover, even without active networks, recruiters may have a tendency to hire people at all levels from similar backgrounds to themselves, supporting a self-perpetuating imbalance (Ashley *et al.*, 2015). The benefits of the cultural capital acquired initially in private school could be expected to be concentrated strongly in certain lines of business where it takes hold. If such a network effect were prevalent especially in the (high-paying) financial and business services industries, it could generate an otherwise unexplained private school pay premium.

The fifth column of Table 3, therefore, includes controls for industry (noting of course that industry choice is endogenous). Inclusion of industry controls reduces the pay premium for those males attending a private school to only 4.5%, an estimate which is statistically insignificantly different from zero. The estimated premium for women is small, insignificant and negative. Hence for men the relationship between private schooling and industry does appear to explain some of the direct pay premium that we observe. In contrast, the pay effects associated with non-monetary job facets remain stable and, in case of leadership tasks and work intensity, significant even after inclusion of industry. We take this evidence to tentatively support the hypothesis that some of the benefits of private schooling are mediated through industry selection. Further research would be required to substantiate whether such selection is attributable to social network effects or other causes.

Conclusions

In summary, we find stark raw differences between private-school educated and state-school educated people in many but not all job-related outcomes later in life. Privately educated workers have jobs where they exercise significantly greater leadership and are more likely to participate in work organisation matters; but equally their jobs require greater work intensity. These raw differences are at least partly explained by family background (which differs sharply between those from the private and state sectors); but after allowing for these there remains a 35% pay premium at age 42 for males and 21% for females. This large premium is the benefit accruing for the investment in school fees. The premium is then further mediated via the individual's level of education achieved. So private schooling does generate differences in important facets of job quality, though much of the differences can be attributed to the fact that individuals who experience private schooling have higher levels of education. That said, we do find evidence for direct private school effects on the likelihood of having a job with high levels of employee participation and greater work intensity, and for a direct pay premium. For example, privately educated men are 43% more likely to participate in decisions about the way their job is done, than observably similar state-educated men. The patterns we observe vary both by gender and in a few cases by data set. Generally, the associations between a private education and the labour market outcomes are more pronounced for men than for women.

We also find that, though leadership, participation and work intensity do correlate with pay, these aspects of the jobs undertaken by male private school alumni do not explain the substantial direct wage premium earned, which thus remains a puzzle. By contrast, choice of sector does explain nearly half of the direct wage premium for males, indicating that the value of private schooling is partly mediated through choice of and access to particular industry sectors. As with all the studies of this phenomenon, our evidence is correlational and we lack controlled experimental evidence for the impact of private schooling: it could be that children who attend private schools have other characteristics that cause them to have higher earnings and that we do not account for these factors even in our relatively rich models. Despite this caveat, the findings are highly suggestive.

So what do our results mean for policy? First and foremost, since much of the advantage of private schooling is mediated through educational channels, the findings imply that, to address the social mobility and equality issues surrounding private schooling, the main focus should be on educational policy, rather than on employment policy. Privately educated children go on to have higher levels of education and it is this which in turn secures them better quality jobs and greater labour-market prospects. To the extent that access to private schooling is limited to the wealthy then this is one mechanism by which social and economic advantage can be maintained, namely through greater investments in education.

What this implies for education policy is less clear. In terms of access, one could pursue policies that ensured greater openness to private schooling for children from poorer backgrounds. Such policies have been pursued from time to time, with only mixed and small-scale effects—for example, the Assisted Places Scheme which began in the 1980s but was curtailed after 1997 (Power *et al.*, 2003, 2006). More recently

the Sutton Trust, a charitable think-tank, has developed a vision for much greater integration of the two sectors through their 'Open Access' programme.[4] Governmental policies for extensive inter-sector integration have, however, yet to be developed very far. In recent years, policy has focused instead on encouraging independent schools to share more 'public benefits' with state schools (Cabinet Office, 2011). Yet such policies of persuasion, even when supplemented by charity law obligations, do not appear to be altering the practices of independent school headteachers very much (Wilde *et al.*, 2015). An access policy for post-school education currently in force is that the university access regulator (the Office for Fair Access) has explicitly set targets for universities to increase the proportion of state-school pupils enrolled. Others have argued for a policy to encourage contextualised admissions policies for universities, these being supported by ongoing evidence derived from the in-college performance of private and state school students (Smith & Naylor, 2005; HEFCE, 2014). University access policies that seem to disadvantage privately educated students are, however, highly controversial and the future direction for such policies is unclear. The alternative approach could be to actively discourage the development of the British private schooling sector. One way to do so would be to change the private/state balance by reducing or eliminating private schools' tax reliefs. Any gains in equality would, however, have to be set against the losses incurred by private school pupils. A preferable equalising policy option might be to continue to try to improve the quality of state schools to ensure they move closer to private schools in terms of quality. It was the belief in this approach that has, historically, sometimes sustained the unfulfilled expectation that the private school sector would find it hard to sustain itself. However, we need to be mindful of the very large difference in resourcing levels across the two sectors, limiting the scope for lowering quality gaps.

Our findings, despite their implied emphasis on education policy, also include a residual direct wage premium from private schooling for men, over and above the impact of private schooling on education levels. Might this imply forms of cultural or institutional discrimination in the labour market that could also be addressed through policy? Our analysis cannot discount this as a possibility since none of the wider aspects of jobs studied in this (or other) articles can explain this direct-wage effect. The residual premium might reflect social and cultural capital advantages, not captured in the data, accrued by attending a private school. Alternatively, it might follow from the way that private school alumni use their networks to secure advantageous access to high-wage industries, such as business and financial services. We think that further research is still needed on the interconnected roles of industry choice, networks and non-cognitive skills in explaining the direct labour-market disadvantages from private schooling in Britain. Any policies to address this part of the disadvantage for state-educated males relative to privately-educated males should follow from a better understanding of which of these factors is most important.

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NOTES

[1] Independent Schools Council Census 2015. http://www.isc.co.uk/media/2661/isc_census_2015_final.pdf
[2] Full details of the British Cohort Study can be found at http://www.cls.ioe.ac.uk/
[3] Derived as 100*[exp(b)-1] where b is the estimated coefficient.
[4] http://www.suttontrust.com/programmes/open-access/

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Appendix

	SES	BCS
Non-monetary job facets		
Participation	A great deal or quite a lot of say in decision that changed the way job is done—(0/1)	'Can take part in decisions about my job'—strong agreement (0/1).

Appendix (Continued)

	SES	BCS
Work intensity	Linear average of standardised items: 'My job requires that I work very hard', 'I work under a great deal of tension', 'How often does your work involve working to tight deadlines?'. First two items range from 1 (strongly agree) to 4 (strongly disagree), last item ranges from 1 'All the time' to 7 'Never' Alpha coef.: 0.57. Since this is somewhat low, the index should be regarded as a combination of more than one manifestation of work intensity.	Linear average 'My job requires that I work very hard'; 'I work under a great deal of tension'; 'My job often involves working to tight deadlines'. Ranges from 1 (strongly agree) to 5 (strongly disagree). Alpha coef.: 0.73
Leadership intensity	Leadership intensity scale is the first principal component (explaining 56% of the variation) of the stated importance (5-point scale) of 'persuading or influencing others', 'making speeches or presentations', 'making strategic decisions about the future of your organisation', and 'keeping a close control over resources' together with self-reported managerial or supervisorial duties and the degree of job variety. Values for 'making strategic decisions about the future of your organisation' and 'keeping a close control over resources' were set to 'never' for employees without supervisorial/ managerial duties. We use the mean leadership scale value in each SOC 2000 unit group.	Imported from SES by SOC 2000 unit groups
Covariates		

Appendix (Continued)

	SES	BCS
Socio-demographics	Retrospective information on parental interest in education, financial situation at home during childhood, birth year, ethnicity (4 groups), current region of residence, marital status, dependent children in household (0/1)	Cognitive skills at ages 5 and 10; age 10 introversion score extroversion score; social background (parents' highest education level, parent's social class, overcrowded house at age 5, mother's age when respondent born, duration of breastfeeding, birth order, birth weight, ethnicity (7 categories), whether family owned house when aged 5; region of birth (13 categories); household income at age 10, mother's interest in child's education, father's interest in child's education, whether in receipt of free school meals (age 10).
Posterior educational attainment	Highest education qualification level (5 levels), highest qualification in mathematics, if degree: Oxbridge or Russell group university, subject (4 categories) and degree grade (upper second or first versus rest) all interacted.	standardised age 16 exam score; number of A–C grade A levels; highest level of 'facilitating' A levels; highest education qualification level; if degree: subject (3-categories), whether elite university, and degree grade (whether upper second or first) all interacted. The dependent variable and school status are unimputed; other variables are imputed from birth and early childhood data for missing cases; the estimates exclude Scotland (for whom the education data is incomplete).